

Parapsychological Monographs

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A Review of Published Research
on the
Relationship of Some Personality
Variables to ESP Scoring Level

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Nash and Richards (26) in 1947 first investigated the relationship between a measure of intelligence and scores obtained in a series of PK tests. The I.Q. scores of their 48 college subjects, obtained from the Higher Examination of the Otis Self-Administering Tests of Mental Ability, showed a very small correlation ($-.12$) with PK scores.

Summary on Intelligence and ESP

The nature of the relationship between intelligence and ESP scoring level is still undefined. Valid objections, which preclude any clear-cut conclusions being drawn, can be levelled at most of the studies that have been made.

In the first place, they have often involved too few subjects, a fact which makes generalization difficult, despite some high correlations. Again, the same intelligence test was never used by two investigators, and since different tests may be sampling different aspects of intellectual ability, the results are not strictly comparable. In addition, not all the intelligence scales or estimates used are of equal validity, and in two cases, the investigation of the relationship between intelligence and ESP scoring level was a side-issue to the main experiment.

One tentative conclusion, however, may be drawn. There seems to be one factor conducive to a correlation between ESP scoring level and intelligence, namely, when the "best" estimate of scores is used as the ESP criterion.

By the use of the "best" estimate of scores rather than averages for the ESP criterion, Humphrey found that the correlation between intelligence ratings and ESP scoring increased. An estimate based on the best results achieved should eliminate those fluctuations due to factors other than intelligence, such as boredom and fatigue, which are known to affect scoring level, and give a purer estimate of ESP to be correlated with intelligence. Obviously the overall average run scores need not be an accurate reflection of the subject's real ESP ability.

Humphrey's findings particularly suggest either that the more intelligent subjects have better ESP, or that the obtained correlations between intelligence and ESP scoring are merely indicative of the subjects' adaptability to the test situation. No more definite judgment can be made at this stage.

INTEREST

C. E. Stuart was on personality factors and experiment involving a their effect on ESP score role of "affectability" mate of his success in a score he has just prev

In 1946 Stuart (32) list of 60 items. Subject which varied from "li list, which included ev college students, was in the experiment. The concealed stimulus pic which were closely re gate whether the subj pictures influenced the

These clairvoyance-matching method, dev tion. The total ESI out only one non-sig scores made on the in to the five attitudes re was no evidence, how of the stimulus pictures

Stuart then separat those which fell near (extreme) from the ni his subjects to be "at "level of aspiration" at chance, and "unad paper, Stuart equated considered the extrem group as the "unaflee

In the drawing to "affectable" group he was statistically signif toward displacement right negative deviat five deviation ($P = .000$)

Summary of ESP and Interest Ratings

The successful discrimination between high and low scoring ESP subjects on the basis of ratings on both the full Interest Inventory and on the restricted 14-item scale, which was reported by Stuart and Humphrey in earlier investigations, did not hold up as well in the later series. The results of these later series, however, are not published in their entirety, but are merely briefly mentioned by Humphrey in a review (19). Whether this decreased efficiency reported was in fact due to the lack of a real relationship between interest ratings and ESP scoring level, or whether it was due mainly to widely differing psychological conditions, such as number of runs per subject, or type of ESP test, which obtained during the later series, cannot be determined from the information available.

Inspection of the items of the full scale indicate that they cover fairly well the full range of student activity and interest. Stuart equated "affectability" with range of interest; this fact, added to the pervasiveness of the scale, seems to indicate that mid-range subjects may be those who are moderate in their interests and who maintain a reasonably temperate attitude towards their environment.

Inspection of the 14 items of the restricted scale, however, suggests that they measure what could be loosely described as "social adjustment"; perhaps it would be more correct to say that the scale is heavily weighted in favor of the more social or extravertive activities. The two scales appear to be measuring somewhat different factors, and it would seem essential to analyse the scales against established criteria in order to get at what each scale basically is measuring. Without information so secured, we can merely conclude that although both scales, to a different degree, separate high and low ESP scorers, the personality traits concerned in this differentiation remain in doubt.

INTROVERSION-EXTRAVERT

Humphrey first reported an ESP Personality Inventory in 1945 (13). The Earlham College Series I (GES) and the Humphrey-Pratt Precognition series; Bernreuter ratings on 6 personality factors—intelligence, introversion, dominance, seriousness—were correlated with ESP scores in the cognition series; the CR of the difference series was taken from the quarters of the record page was taken from the correlations between Bernreuter scores and ESP scores; subjects who were stable, extraverted, and serious, however, tended to score positively on ESP. Opposite characteristics tended to score negatively. Humphrey (16) later utilized the difference series to determine a cut-off point on the difference series for high and low scoring ESP subjects. Subjects were judged to be extraverted or introverted if they scored above or below the 50th percentile on the difference series. A highly significant positive deviation on ESP card tests than those who introverts scored at chance. The CR of ESP scores for the two groups was

Table
ESP Scoring Levels of Extraverts and Introverts

	Subjects Scoring above Chance
Extraverts	14
Introverts	5
Totals	19

On the basis of these results it was possible to select the 25th percentile on the Bernreuter Personality Inventory as a criterion for ESP card tests than those who

The two series on which the prediction was tested were the Pratt-Humphrey Precognition and the unpublished Lawrence Clairvoyance Series. In the Pratt-Humphrey series, the ten extraverts had a deviation of +56, and the nine introverts a deviation of -34. The CR of the difference was significant ($P = .02$). In the Lawrence series, the 9 extraverts made a deviation of +48, the 12 introverts a deviation of -18. The CR of the difference was non-significant ($P = .08$). The total of 19 extraverts from the two series made a deviation of +104, and the 21 introverts a deviation of -52. The CR of this difference was significant ($P = .005$).

As shown in Table 5, the consistency of this separation was significant ($P = .005$) with 74 per cent of the extraverts scoring above chance and 76 per cent of the introverts scoring at chance or below.

Attempts at Repetition

Caspar (5) administered the Bernreuter Inventory to 20 subjects and obtained 2 GESP and 2 BT runs from each. He classified his subjects as extraverts or introverts on the basis of whether they scored above or below the 50th percentile on the scale. The extraverts had a deviation of +26, and the introverts a deviation of -18. The CR of the difference was suggestive ($P = .03$). Eight of the fourteen extraverts scored above chance, but none of the six introverts did. When evaluated by the exact method, the results are significant ($P = .02$).

Although only two studies have been reported with the Bernreuter, it appears to be a very promising research tool. In both studies, high and low scoring ESP subjects were separated with a high degree of consistency.

In the Nicol and Humphrey study (27) correlations were obtained between ESP scores (Known and Unknown runs) and two measures of introversion-extraversion. Factor T of Guilford's SIDCR Inventory is called Thinking Introversion-Extraversion. The thinking introvert is given to reflective thinking and analyzing himself and others, while the opposite holds true for the thinking extravert. The correlations between Factor T and the known ESP scores was +.10, with the Unknown scores +.37,* and with total ESP scores +.33.

Factor S of this same test is called Social Extraversion; it correlated +.29 with Known ESP scores, +.21 with Unknown scores, and +.34 with total ESP scores. None of these correlations was significant, but a significant correlation (+.54**) was found between Social Extraversion and Self-Confidence (Factor I) and a suggestive correlation (+.37*) was found between Thinking Extraversion and Self-Confidence. The latter correlations have value in this study. Self-confidence was found to be the factor most highly correlated with total ESP score ($r = +.55^{**}$). A person with a high score on Factor S is characterized as being social, as one who tends to seek social contacts and enjoys the company of others, while low scores indicate shyness and seclusiveness.

Summary of Introversion-Extraversion and ESP Scoring Levels

In all the studies reviewed in this section, it was found that extraversion was associated with higher ESP scores than introversion. This factor, or more precisely, the scales on which this factor is measured, separated out high and low scorers with a high degree of consistency. Unfortunately, however, it is not clear which aspects of behavior are included under the term extraversion, and for evaluative purposes it would seem essential to have more specific information on the factors underlying this broad

comprehensive category. If dimension scales, such as the factor, and it is uncertain factors as, for example, so lord questionnaire.

An alternative has been Ford-Martin or Cattell, who of highly correlated traits better estimate of extraversion analysis, to correct for the. This method has been used and the direction is a prediction of extraversion is not these lines would have made

tested were the Pratt-Humphrey-Lawrence Clairvoyance Series. Extraverts had a deviation of -34 . The CR of the difference series, the 9 extraverts made a deviation of -18 . The CR of the total of 19 extraverts from and the 21 introverts a deviation is significant ($P = .005$). This separation was significant for extraverts scoring above chance and for below.

Inventory to 20 subjects and which. He classified his subjects whether they scored above or below the extraverts had a deviation of -18 . The CR of the difference between fourteen extraverts scored above and below. When evaluated by the exact test ($.02$).

reported with the Bernreuter, tool. In both studies, high and low a high degree of consistency. The correlations were obtained between runs) and two measures of Guilford's STDCR Inventory. The thinking introvert is of himself and others, while the extravert. The correlations between was $+.10$, with the Unknown scores, $.33$.

Extraversion; it correlated with Unknown scores, and $+.34$. The correlations were significant, but a correlation between Social Extraversion and Self-Confidence. The correlation was $+.37^*$. Self-confidence was found to be a total ESP score ($r = +.55^{**}$). The character is characterized as being social, enjoys the company of others, and sociability.

Scoring Levels

it was found that extraversion is higher than introversion. This factor, which is measured, separated from consistency. Unfortunately, the factors are included under the same scores it would seem essential to identify the factors underlying this broad

comprehensive category. Part of the difficulty lies in the fact that single dimension scales, such as Bernreuter, may not give a pure measure of the factor, and it is uncertain to what extent it can be identified with such factors as, for example, social and thinking extraversion on the Guilford questionnaire.

An alternative has been to use a multiple trait scale, such as the Guilford-Martin or Cattell, where all the overlapping material of a number of highly correlated traits, which together should give a progressively better estimate of extraversion, is utilized, and by the use of regression analysis, to correct for the degree of overlap between the various traits. This method has been used with some success by Nicol and Humphrey, and the direction is a promising one. Some clarification of the components of extraversion is necessary, however, before further work along these lines would have much value.

EXPANSION-COMPRESSION RATINGS AND ESP SCORING

In 1942, while at Stanford University, Stuart (51) developed a technique for judging similarities between four concealed target pictures and the drawings made by a subject attempting to reproduce the pictures. This technique, called the preferential matching technique (PMT), was used by Stuart to analyse the large collection of drawings he obtained at Stanford; the latter provided the data to which the expansion-compression ratings were applied.

Paula Elkisch (8) has devised a projective test which utilizes the form qualities of children's drawings. Certain features of the drawings are considered to indicate neurotic trends, and these features are measured in terms of four criteria: rhythm-rule, complexity-simplicity, integration-disintegration, and expansion-compression (E-C). The E-C criterion was the only one which subsequently proved successful in discriminating high and low scoring ESP subjects.

Elkisch defines expansion and compression as follows: "Expansion stimulates the imagination dynamically. It conveys an atmosphere of freedom, courage, adventure, and may be a symptom of vitality and of healthily developed extraversion. Expansion stands for a direction toward the surrounding world; for the potential ability of making contact... Compression conveys a feeling of discomfort, of being shut in, of pressure and compulsion. Compression may be, if connected with other traits, a symptom of a neurotically developed introversion, even of a compulsion-neurosis. Compression stands for isolation."

Certain aspects of expansion-compression can be fairly objectively described. For example, in making drawings, the compressives use only a small amount of the available space, their drawings are cramped and badly proportioned, lines are light and feathery, they use too many conventional forms—houses, boats, etc. By means of these characteristics it is possible to make an overall assessment of expansion-compression.

Drawing Tests

In the first reported E-C research, Humphrey (20) in 1946 used the data from four series of clairvoyance drawings obtained by Stuart. Of the 96 subjects involved, 41 were rated expansive and 55 compressive. The drawings from each group were scored by the preferential matching technique. With mean chance expectation at 40.0, the mean ESP score for the expansive group turned out to be 41.88, for the compressive group only 37.45. The difference in average scoring level between the two groups has a significant value ($P = .003$).

Although there was no significant overall deviation in his data, Stuart had found significant backward displacement ($P = .003$) which had been the main ESP effect. Displacement data were not available for one series, but a comparison was made between backward displacement scores of the expansives and compressives on the remaining series.

With mean chance expectation of 29.54 and the 33 compressives, the difference between the scores of the two groups was highly significant.

Following this successful experiment, Humphrey applied the same technique to the data of the Stuart Individual Tests. A total of 100 drawings were scored, each. With mean chance expectation of 30.0, the average score for the expansive group was 38.23, for the compressive group 30.0. The difference in scoring level between the two groups was highly significant. The E-C rating made a successful discrimination between the two groups with GESP drawings. There was no significant difference between the two groups with the expansives now scoring 38.23 and the compressives 30.0.

From these two reports it can be seen that the E-C rating, compression, discriminates between the two groups. The expansive and GESP drawing compressives are the positive scores, and the nature of the ESP test, expansion-compression, is highly significant.

A logical follow-up was the application of the E-C rating to test results. The first study was by Humphrey (45). The 186 drawings were scored, each. The first study asked to make drawings in 10 minutes, then given 2 BT card runs. The results were non-significant. The drawings were scored, each. The drawings of a subject was expansive or compressive, 97 expansive, 97 compressive.

The average run score of the expansive group was 4.79, but the difference between the two groups was not significant. However, since there were two sessions, a total of 372 drawings were scored. The expansive group had a mean score of 4.79, the compressive group 4.00. Taking this consistency into account, the difference between the expansive and compressive groups was highly significant.

In a large scale experiment, Smith and McMahon (53) used 100 ESP subjects on the basis of four series of clairvoyance tests. The results of the four series of clairvoyance card runs were as follows: each subject did 4 spontaneous drawings for the purpose of comparison under different conditions.

In the group series, 63 subjects were followed by 2 clairvoyance drawings, all in one session.

The overall results of the four group series were non-significant. The expansive subjects scored above chance, but the difference was not significant. In the group series the 23 expansive subjects scored below chance, but the difference was not significant ($P = .01$). When the average scoring level was highly significant, the difference between the two groups in the card tests the total difference was no significant.

lucky disposition), freedom from nervous tension, emotional stability, calm trustfulness, and low irritability level.

Summary on Adjustment Ratings from Questionnaires and ESP Scoring Levels

With the exception of Rivers' study, the results of the research included in this section all point toward the conclusion that higher ESP scores are obtained by subjects possessing the personality characteristics generally included under the label of "good personal adjustment." Whether well-adjusted subjects score higher because of greater cooperation, quicker adaptation to the experimental situation, better ability to establish rapport with the experimenter, freedom from personal inhibitions, some combination of these factors, or other unsuspected factors is a matter for further research.

COMBINATIONS OF I
ESP S

Some of the researches reveal the relationship between ESP and three personality measurements discussed previously, however, and the various measurements since of any combination of the

This section will be devoted to the relationship of these combinations to the scoring level.

In a review article Humphreys' average score was obtained in extreme-low ratings on the In either rating was considered as level between these combined and represents the pooled results.

Expansion-compression ratio series and the difference in

ESP Scoring Level	
Subjects Scoring above Chance	
Expansive Midrange High	26
Compressive Extreme Low	36
Totals	62

the high group and the difference was not as significant combination of personality

found to be significant
table 7.
of personality measure-
3). The highest average
jects (43.93) and the
subjects (36.81). The
= .0007). The differ-
insecure and the com-
5).
ality combination was
ults of the two studies
shows an average score
subjects, and 4.61 for
e CR of the difference
5). In the earlier (45)
all six classes, which
e-secure subjects had
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ix gave results accord-

(23) where a "pure
here was an average
re subjects and 5.85
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5** and emotional
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orrelation between
e (R = +.65) was

For each factor. By
derive an equation
elf-confidence and
two measures to-
can either measure
e predicted group
idually, however,
deviated sharply

at the magnitude
number of runs
ence scores were
s in the session,
2, after 12 runs
found in Hum-

phrey's study on introversion-extraversion (16), and raises the question of the optimal number of runs to be used in studies utilizing personality measurements.

In a later study, based upon data gathered in the 1952 study and a later 1953 series, Nicol and Humphrey (28) attempted to discover whether subjects could correctly identify successful ESP calls. Subjects were requested to place a check mark beside each call which they felt was a hit. This, of course, was done before the subject was informed of his success. The method used to evaluate whether an awareness of ESP had been demonstrated was to compare the proportion of checked hits against checked misses.

The authors reported that the 34 subjects represented in the pooled Unknown runs were successful in identifying correct calls to a very significant degree ($P = .0003$). This effect did not hold up for the 22 subjects represented in the Known runs. Since only the Unknown runs gave significant results, these alone were considered when the attempt was made to discover if "conviction of success" was related to personality factors.

Only those subjects who gave an average of five to ten checks per run were included in any of the statistical evaluations. The checking success of the confident and unconfident subjects were compared, and it was found that the 17 unconfident subjects had a significant ($P = .0006$) excess of checked hits over misses; the checking success of the 12 emotionally unstable subjects was also highly significant ($P = .002$).

On the surface, these findings appear to have considerable theoretical importance. If, on the basis of personality tests, certain groups of subjects could be selected who "sometimes know when they're right," the progress of ESP research would be considerably advanced. However, there are certain criticisms which can fairly be leveled at the experimental procedure. For instance, it seems questionable to include only subjects having an average of 5-10 checks per run in the overall evaluation. Because of the well-known bias resulting from atypical scores in computing an average, it would appear that a more appropriate measure of central tendency, such as the mode, might have been employed to select subjects. An interesting comparison would have been to present the overall evaluation in terms of all runs having 5-10 checks, rather than making the subject the basic unit.

Another point deserving attention is that there appears to be some grounds for assuming that checking behavior *per se* is a function of self-confidence. Since the authors mention that quite persistent urging and coaxing was resorted to in an effort to obtain the desired 5-10 checks, it seems reasonable to assume that subjects who were unresponsive to such prodding could be considered as lacking in confidence. Yet it was these same "unconfident" subjects who were excluded from consideration when the role of confidence upon checking success was investigated.

Summary on Combined Personality Measures and ESP

In all the reports reviewed in this section, a higher degree of separation was obtained between subjects when combined rather than single personality measures were used. This suggests that the expression of ESP may be dependent upon a number of personality factors working in combination and that the most profitable method of selection for obtaining high and low scoring ESP subjects would be to use a battery of personality tests rather than single measures.

Some of these reports also give indications that through the use of combined personality measures and more refined methods of statistical analysis, it may be possible to show a relationship between personality characteristics and *amount* of ESP, rather than merely *sign of deviation*, as has been found in studies employing a single personality measure and a simple statistical evaluation.

ATTITUDES OF BL

The most active worker in ESP scoring level has been (37) on an investigation in of an individual interview. possibility of ESP (sheep) (The sheep classification was undecided about the possib

After the subjects had b testing environments were The goats were placed in a as many as 50 runs per to periodic knowledge of resul working conditions, were of the ten runs in the testin

Three series of clairvoyan sheep and goats were tested The next article (38) repo of the sheep for the 3 pool the 574 runs of the goats was significant ($P = .001$) not significant.

Since the sheep and the g experimental conditions, relationship between the atti since the possible effects o results, attitude of the expo the differences in scoring le of these three series, theref tical evaluations made in th It seems more appropriate data from which the hypo score of the sheep would than the average run score sidered as providing an i hypothesis.

Later Series

In all experiments includ were tested under identica college students, and all w number of runs per subject reader can find a full

or a very negative response to the questions, 'Do you believe in the existence of ESP?' and 'Do you believe you possess ESP abilities?' If we split our group into high-low categories, neither category including many subjects with very positive attitudes, one way or the other, we find that our results do not substantiate those obtained by Schneider and Bevan."

The results of these others workers' published data bearing on the sheep-goat classification are collated in Table 10.

Inspection of Table 10 reveals that in 5 out of 6 cases, the sheep had higher ESP scores than the goats; that the sheep, with one exception, had positive deviations, while all the goats, with 2 exceptions, had negative deviations. The non-sheep non-goat subjects who, for convenience and for comparative purposes have been lumped together as indecisives, had deviations which showed considerable variation.

The consistency of the group scoring levels, which was reported in one study only (55), is shown in Table 11.

Table 11
ESP Scoring Levels of Sheep and Goat Groups (Petrof)

Group	Subjects Scoring above Chance	Subjects Scoring below Chance	Totals
Sheep	11	7	18
Goats	1	9	10
	12	16	28
P = 18! 10! 12! 16! + 18! 10! 12! 16!			
28! 11! 7! 11! 9! 28! 12! 6! 0! 10!			
=.011			

Table 11 shows that the majority of sheep scored above chance and the majority of goats below chance. Since this pattern of scoring was predicted from Schneider's results, only a one-tailed probability is reported; this has a statistically significant value ($1P = .01$).

Having reviewed all the researches which can be considered as attempts to repeat Schneider's findings, the question which needs to be answered is "Can these studies be interpreted as confirmation of Schneider's findings?"

The crucial problem is obviously that of the criterion on which the sheep-goat differentiation is to be made. Schneider herself changed the criterion as her experiments progressed. In the series reported in 1943 (38), subjects were merely questioned as to their attitude to psychic phenomena in general, telepathy and clairvoyance in particular; the sheep were those who wondered if such phenomena would occur, or who believed in their reality, the goats those who rejected the possibility. In the tables presented in the report, however, the two categories are labelled "open-minded" and "expect to score at chance". There seems to be something of a contradiction here. The goats, who rejected the possibility of ESP, would certainly expect to score at chance; on the other hand, it is possible to imagine a sheep who accepts the reality of ESP phenomena and who nevertheless expects to score at chance in

the test situation. This could

In her later series, Schneider found that paranormal success in goats as those who denied success under the condition. Schneider used essentially items in the sentence completion test to measure the subject's attitude to the test situation on his attitude of belief.

Bevan's criterion was for subjects whether they accepted or not they were goats; if they were demonstrated, they were measured by the technique "no" or "don't know", the themselves on a continuum a category of indecisives.

Schneider's work, the inclusion of series A of his experiments, whether he believed in ESP (sheep), or whether they disbelieved. Subjects were asked three questions: "Do you believe you believe that you yourself points out, question three subject's belief in his own ESP. He reports that, in the limit, be compared with her result 4.89 hits per run, and the presented.

Kahn's criterion was whether it was statistically possible (1) in this particular instances. He found that one here only", that is, in the Table 10 as indecisives, criterion, they should be in the "impossible anywhere subjects on whether they expect below chance. This overla however, treats this as a separate the subject in the experiment.

Eilbert considered both in ESP and thinks he will ESP but doubts that he was who were doubtful about completely or who gave completely similar to Schneider's.

Woodruff and Dale asked believe in the existence of abilities?", "I think my chance", 'at chance', 'bel made no overall sheep-goat questionnaire. The subjects' terms of classification on the

"Do you believe in the existence of ESP abilities?" If we split the category including many or the other, we find that by Schneidler and Bevan." Published data bearing on the c 10.

out of 6 cases, the sheep had sheep, with one exception, s, with 2 exceptions, had t subjects who, for convenience lumped together as in- considerable variation. els, which was reported in

at Groups (Petrof)	
ts Scoring	
Chance	Totals
7	18
9	10
6	28
18! 10! 12! 16!	
28! 12! 6! 0! 10!	

scored above chance and is pattern of scoring was one-tailed probability is c ($1P = .01$).

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criterion on which the idler herself changed the series reported in 1943 their attitude to psychic ance in particular; the ana would occur, or who rejected the possibility. the two categories are chance". There seems to goats, who rejected the core at chance; on the who accepts the reality s to score at chance in

the test situation. This could be a matter of confidence rather than belief.

In her later series, Schneidler defined sheep as those who thought that paranormal success in the experiment was at least a possibility, goats as those who denied that there was any possibility of paranormal success under the conditions of the experiment. In her 1954 P-F study, Schneidler used essentially the same criterion, although some of the items in the sentence completion questionnaire, used to rate the subject's attitude to the test situation as such, furnished additional information on his attitude of belief.

Bevan's criterion was somewhat different. He first of all asked his subjects whether they accepted ESP as an established fact. If they did not they were goats; if they did, after laboratory methods of testing ESP were demonstrated, they were asked, "Do you think that ESP can be measured by the techniques just explained to you?" If the answer was "no" or "don't know", the subject was disqualified. All subjects placed themselves on a continuum from belief to disbelief; Bevan thus obtained a category of indecisives. For the purpose of comparing Bevan's and Schneidler's work, the indecisives should be combined with the sheep.

In series A of his experiment, Caspar asked his subjects whether they believed in ESP (sheep), whether they were undecided (indecisives), or whether they disbelieved (goats). In the second series, however, his subjects were asked three questions; "Do you know what the term ESP means?", "Do you believe that ESP is a theoretical possibility?", "Do you believe that you yourself have ESP ability?" As Caspar himself points out, question three of the questionnaire, concerning the subject's belief in his own ESP ability, resembles most Schneidler's criterion. He reports that, in the limited part (Series B) of his experiment that can be compared with her results, the sheep (sheep and indecisives) averaged 4.89 hits per run, and the goats 4.97; a more detailed analysis is not presented.

Kahn's criterion was whether subjects thought that ESP is theoretically possible (1) in this particular experiment, (2) under other circumstances. He found that one group of subjects considered ESP "impossible here only", that is, in the test situation. These have been entered in Table 10 as indecisives, but, in accordance with Schneidler's final criterion, they should be included in the goat category, together with the "impossible anywhere" group. Kahn further questioned his subjects on whether they expected to score above chance, at chance, or below chance. This overlaps with Schneidler's initial criterion; Kahn, however, treats this as a separate analysis, bearing on the confidence of the subject in the experimental situation.

Ellbert considered both those subjects who were rated as "believes in ESP and thinks he will do well in the experiment" and "believes in ESP but doubts that he will do well in the experiment" as sheep; those who were doubtful about the whole thing, who rejected ESP completely or who gave contradictory responses, were goats. His criterion is similar to Schneidler's; his results may be fairly compared with hers.

Woodruff and Dale asked their subjects three questions; "Do you believe in the existence of ESP?", "Do you believe you possess ESP abilities?", "I think my results in the above experiment are 'above chance', 'at chance', 'below chance'." Unfortunately, however, they made no overall sheep-goat assessment on all three items of their questionnaire. The subjects' scoring averages can merely be presented in terms of classification on each item singly.

It appears that no strict answer to Schmiedler's results have been found. It was initially a shifting one, varied from hers, in some cases differences existing in subjects' preferences in targets (ESP symbols, runs per subject (4,5,6,8,12), and GESP), and differences in experimenters). In one, however, and some sort of necessary. This is attempted in Schmiedler's as closely as possible in the indecisive and sheep, in the indecisives are combined with the indecisives were those who concluded, "i.e. in the test situation, in accordance with Schmiedler's results which he himself included in Table 1, no break-down is given for the three items, each of which is presented here.

Sheep Workers

Goats				
Av. Score	Sub.	Runs	Dev.	Av. Score
5.47	10	120	+2	5.02
4.89				4.97
5.21	4	20	-2	4.90
5.06	12	143	+13	5.09
5.00	10	80	-18	4.78
5.04		1500	+35	5.02
4.997		920	+58	5.06
4.99		460	+64	5.14

In three cases the sheep (sheep), in three cases the goats (goats) experimenters in most high and low ESP scorers one defined it, these need results.

COMBINATIONS OF RORSCHACH ADJUSTMENT RATINGS WITH ATTITUDES OF BELIEF AND ESP SCORING LEVEL

The Rorschach is a widely used projective test consisting of 10 standard cards, administered in a set order; to these cards, the subject responds by reporting what he sees or what the blots represent to him. The underlying principle is that in order to structure anything from such ambiguous material, the subject must project something of himself into the material. This structuring is interpreted as reflecting the patterning of the subject's unconscious needs and drives, thereby giving some indications about many facts of his personality, such as whether he is rigid or flexible in his approach to situations, whether he is impulsive, creative, anxious, intellectually ambitious, socially withdrawn.

A quantitative index of the subject's overall adjustment can be made through use of a check list devised by Dr. Ruth Munroe (24). One or more check marks are given for each Rorschach category responded to in an atypical manner, and these check marks are added to obtain a single score representing the subject's degree of adjustment.

In the ESP series, an introduction was given by Schmiedler and the subjects then classified themselves as sheep or goats. The subjects next completed 3 clairvoyance runs (a unit of 75 trials), and then checked their results as the target order was read aloud to them. The testing proceeded until a total of 9 runs had been completed in this fashion. The group Rorschach test was administered by projecting slides of the ink blots on a large screen. This was given either before or after the ESP tests.

The Rorschach records were scored by Munroe's check list method, and subjects having 10 checks or fewer were rated as well adjusted, while subjects with 11 or more checks were rated poorly adjusted. In order to eliminate any possibility of bias when scoring the Rorschach records, Schmiedler was kept ignorant of the subject's ESP score, which had been checked by an assistant and then later double checked.

In preliminary work with 85 subjects from two earlier series (39), Schmiedler noticed that when an adjustment rating was combined with the sheep-goat rating, it was possible to obtain greater separation of ESP scoring levels.

The poorly adjusted subjects scored at approximately the chance level, but the difference between the sheep and goats became more marked for the well adjusted subjects. She advanced the hypothesis that this pattern of well adjusted sheep scoring higher than poorly adjusted sheep and well adjusted goats scoring lower than poorly adjusted goats would be found in future series, and large scale testing of this hypothesis began in the Fall of 1945.

When Rorschach data from 250 subjects tested in 11 classroom experiments (41) were analyzed, the difference in average run score found

significant ($P = .0002$) but chance, thus confirming the in later experiments review article (32) presented a experiments utilizing the October 1945 and December 1 in Table 13.

Adjustment Ratings

No. Runs	Av. Score
3000	5.10
1879	5.17
1121	4.97
2205	4.95
856	5.10
1349	4.85

then the average scores of significant ($P = .000003$). means of the poorly adjusted (1.4).

and Goat Groups

Subjects Scoring below Chance	Totals
85	209
91	150
176	359

37 (1 d.f.)
0001

adjusted subjects arranged in own indicates that when P were positive scorers, chance scorers. The chi-squared only a one-tailed test of means were predicted from

COMBINATIONS OF RORSCHACH SEVEN SIGNS WITH ATTITUDES OF BELIEF AND ESP SCORING

In an attempt to explore further the relationships between Rorschach variables and ESP scoring, Schmeidler decided to analyze the 250 Rorschach protocols from her first work (41) for particular categories that seemed to appear more frequently in the records of high and low scoring subjects. She isolated 7 factors or signs whose presence in a subject's record seemed to act as deterrents to ESP scoring.

If these seven signs are analyzed in terms of their interpretative significance, three patterns of "response tendencies" seem to emerge. A cold, withdrawn, restricted attitude can be inferred from the presence of F+%, Mr., and no shock; extreme impulsiveness or lack of emotional control from the presence of CF+ and C+; and excessive, near-compulsive mental activity or "quantity ambition" from the presence of R+ and total movement++. Thus, subjects who have even one of these seven signs present in their record could be considered to have a *specific* maladjustment which might prevent them from demonstrating ESP.

After having empirically determined these seven signs from this collection of 250 records, Schmeidler went on to gather new data from other subjects to see if the seven signs would continue to show the same relationship to ESP scoring. The two review articles (33, 34), which report further testing with the Rorschach, indicate that absence of seven signs continued to be associated with higher scoring, i.e., her data show that sheep in whose records these signs do not appear score higher than sheep in general, and goats from whose records the signs are ab-

Table 15

ESP Data of 250 Subjects from whom 7 Signs were Empirically Derived

Classification	7 Signs	No. Subjects	No. Runs	Average Score
Sheep	Present	66	590	4.84
	Absent	51	459	5.44
Goats	Present	62	559	5.09
	Absent	71	638	4.73

sent score lower than goats in general. Table 15 shows the scoring levels of the original 250 subjects from whose records the data were derived; Table 16 shows the scoring level of 329 additional subjects whose records were subjected to a similar analysis.

REACTIONS TO FRUSTRATION AND ESP SCORING

The Rosenzweig Picture-Frustration Study (P-F) is a projective technique used to obtain a measure of a person's reaction to frustration. It consists of a booklet of 24 cartoons, each depicting an unpleasant or frustrating circumstance, such as missing a train, in which one person makes a remark of frustrating significance, depriving or blaming the other. The subject responds on behalf of the frustrated person. The drawings are deliberately crude, having only indistinct facial features and a minimum of background provided.

The test can be scored for several different categories but so far only three have been used for research in parapsychology. These three are defined as follows:

Extrapunitiveness—refers to aggression overtly directed toward the environment in the form of blaming some outside force for the frustration or of placing someone else under an obligation to solve the difficulty.

Intropunitiveness—aggression is expressed overtly by the subject against himself in a martyrlike fashion with an acknowledgment of guilt or shame, or by assuming the responsibility to clear up the situation.

Impunitiveness—aggression is evaded or avoided in any overt form, and the situation is interpreted as being insignificant or no one's fault or as likely to solve itself if the subject simply waits or conforms.

The first indication that the P-F might be a useful test in parapsychology grew from a thesis study by L. Eilbert at CCNY. An article by Eilbert and Schmeidler (7) reported that when the P-F scores of Eilbert's subjects were divided into four quartiles, the differences between ESP scores obtained by subjects in the first and fourth quartiles were suggestive (P around .05). The correlation of $-.32$ between extrapunitiveness and ESP score was significant ($P = .01$) but the correlation of $+.28$ for intropunitiveness and $+.22$ for impunitiveness were only suggestive ($P = .04$ and $.07$ respectively).

Schmeidler (43) then attempted to see if similar results could be obtained from analysis of P-F scores which she had obtained during several years of testing. She had P-F scores for 446 subjects and obtained a correlation of $-.09$ between ESP scores and extrapunitiveness ($P = .03$) and a correlation of $+.10$ with impunitiveness ($P = .02$). When her results were combined with Eilbert's, the correlation of $-.12$ between ESP scores and extrapunitiveness was significant ($P = .005$), and the correlation of $+.12$ with impunitiveness was also significant ($P = .003$).

These combined data were also analyzed by comparing the difference in mean ESP score between the subjects scoring in the lowest 10% and highest 10% of the Rosenzweig categories. The mean score of the least extrapunitive (lowest decile) subjects was 5.20, while the mean score of the most extrapunitive (highest decile) subjects was 4.86. This difference

in mean score was significant ($P = .01$). The mean score for impunitive subjects was 4.94, of the least impunitive subjects was 5.27; this difference in mean scores was significant ($P = .01$). The scoring directions were in all cases more negative than for the goats. In fact, most of the differences mentioned were independently significant for the goats.

Despite the fact that significant correlations were found between the P-F and ESP scores, the correlations of the relationships measured would seem to be unexpected since the P-F score is a measure of the subjects' reaction to a mildly frustrating life. This does not necessarily mean that the subjects would be expressed in an ESP situation. It is possible that ideas as to how the subject interprets a frustrating or joyable experience, the aggressive reaction to an annoying situation would have little to do with the ESP situation.

To test this assumption, Schmeidler (43) tested this assumption in a group setting with the P-F and ESP. In a group setting with the P-F and ESP, the subjects found the ESP situation to be more annoying than the P-F situation. The annoyance was based upon a combined score of the P-F and ESP, a variation of the incomplete sentence method, a variation of the incomplete sentence method contributed most heavily to the annoyance.

Ratings were made along a 7 point scale, the greater the degree of annoyance, the greater the degree of annoyance. Since the P-F scores were derived from a projection into a moderately frustrating situation, it is probable that only the P-F scores of subjects who were moderately frustrating would be correlated with the annoyance ratings of 5 or 6 were selected for the annoyed group.

Although the correlations between the P-F and ESP scores for 266 subjects were in the expected direction, they were not significant. However, when the subjects were divided into four quartiles, the differences between ESP scores obtained by subjects in the first and fourth quartiles were statistically significant for extrapunitiveness ($r = +.21$, $P = .01$) and intropunitiveness ($r = +.21$, $P = .01$), but not for impunitiveness, which was not significant for the sheep, but significant for the goats.

Schmeidler's interpretation of the results is that the habitual response to mild frustration is to react in a mild and hostile while making ESP responses. The subjects who were mildly frustrating, and would therefore be characterized by a reactive and impunitively fashion would emphasize the mild and hostile reaction to a moderately frustrating experiment and therefore, make higher ESP scores. The correlation for the intropunitive group was significant. The virtue of being a goat, was probably to react toward the experiment, he neverthless, in a frustrating situation, and he would take upon himself the responsibility. He would, therefore, tend to minimize

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VALUE-RATINGS AND ESP

There is one article by Schmeidler reporting on the use of the Allport-Vernon Study of Values (AVSV) in an ESP experiment (35). This test indicates in which of six different value areas (theoretical, religious, social, economic, political, or aesthetic) a subject seems to identify himself most. Scores are obtained in terms of percentile ranks and subjects scoring high in one or two areas must necessarily score low in the remaining ones.

Although it had been found that sheep made higher ESP scores than goats, it is apparent that the subjects' answers to the theoretical question of whether ESP exists or not did not separate them into clearly distinct groups with favorable or unfavorable attitudes toward the experiment. Some of the sheep might find the experiment boring or irritating and some of the goats might like competitive tasks and enjoy playing "guessing games". Schmeidler had earlier suggested (44) that the sheep-goat dichotomy would be most meaningful for subjects to whom theoretical problems are important (that is, subjects with high theoretical scores on the AVSV).

Table 19
ESP Data Arranged According to Percentile Rank on Theoretical
Scale of AVSV

Percentile	Sheep		Goats		Diff. in Ave. Score	P
	No. Runs	Ave. Score	No. Runs	Ave. Score		
All Subjects	504	5.30	455	4.93	.37	.002
Below 90	384	5.18	367	4.95	.23	.06
90 or Above	120	5.68	88	4.85	.83	.002
95 or Above	40	5.95	24	4.38	1.57	.001
100	24	6.54	8	4.50	2.04	.006

The hypothesis stated before these data were gathered therefore was that the difference in scoring level between the sheep and goats would be greater for those subjects who had a strong theoretical orientation. The problem of whether ESP could be demonstrated in the test situation should then be one that takes on personal significance for these subjects, since it is closely related to their systems of values or expectancies. Such

subjects would presumably identify more closely with the purpose of the experiment, that is, to show the presence or absence of ESP.

A total of 63 subjects from four different psychology classes were tested in a classroom setting. Each subject was supposed to classify himself as a sheep or goat, make 8 ESP runs, and complete the AVSV. The theoretical scale of the AVSV was then scored and subjects receiving a percentile rank of 90 or above were considered to be theoretical subjects. Table 19 shows the results of the various breakdowns which were made to compare theoretical and non-theoretical subjects.

In Table 19 it is shown that the difference between the mean scores of the non-theoretical sheep and goats was not significant ($P = .06$), but when the theoretical sheep and goats are considered, the difference between their average scores is over three times as great as the difference of the non-theoretical subjects ($P = .002$). From the table, it appears that the differences in scoring level continue to become larger as the degree of theoretical orientation becomes more marked; the P values associated with these differences are significant or highly suggestive. The interpretation advanced is that subjects who place increasing emphasis on theoretical values are able to exhibit a corresponding increase or decrease in their ESP score.

Generally, the number of cases in each category is too small for such generalization. In addition, however, when the three categories (90 or above, 95 or above, and 100) in Table 19 are considered as discrete rather than continuous categories (i.e., 90-94, 95-99, 100), as they should be in any valid comparison of scoring levels, the differences in scoring

Table 20
ESP Data Arranged According to Percentile Rank on Theoretical
Scale of AVSV (Amended Figures)

Percentile	Sheep		Goats		Diff. in Ave. Score	P
	No. Runs	Ave. Score	No. Runs	Ave. Score		
All Subjects	504	5.30	455	4.93	.37	.002
Below 90	384	5.18	367	4.95	.23	.06
90 or Above	120	5.68	88	4.85	.83	.002
90 to 94	80	5.55	64	5.03	.52	.06
95 to 99	16	5.07	16	4.32	.76	.14
100	24	6.54	8	4.50	2.04	.006

level between the sheep and goats at each level of theoretical orientation cease to be significant except in the case of the 3 subjects on the 100th percentile. These amended figures are shown in Table 20. It is apparent that although there are significant differences in scoring level between theoretical and non-theoretical sheep and goats as groups, the impressive progression of theoretical level with ESP scores does not stand up under strict evaluation.

CONCL

From this review of the previous studies, it seems that some personality characteristics of the subjects. As a generalization, somewhat extraverted, securely disposed towards ESP, are likely to score high, while subjects tend to score low.

It was stated at the beginning that it was appropriate to review the ESP studies using two basic approaches of Humphrey; on the one hand, in terms of the consistency of the results.

In general, Humphrey in her review of questionnaires, or from a review of the qualities exhibited in drawings, either by herself or by other subjects, although she did have some reservations from the ESP material, reuter and the Stuart Inter-

It is generally recognized that there are limitations. Regardless of the method, it should be remembered that Humphrey's "surface" traits like extraversion, measuring instrument itself tend to give rise to spurious results, the well-known "halo" effect, the factor of the attitude of the subject, the condition his responses to a particular condition.

A second factor is the tendency shown to affect responses on a similar influence on security, apply particularly to the fact that some subjects from expansive to conservative would, presumably, change the reliability lies in the fact that drawings displayed not with such scales as the M. General explanation appears

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Rank on Theoretical
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	Diff. in	
Score	Ave. Score	P
#3	.37	.002
#5	.23	.06
#5	.83	.002
3	.52	.06
2	.76	.14
-0	2.04	.006

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CONCLUDING REMARKS

From this review of the pertinent data of most of the ESP-Personality studies, it seems that some progress has been made towards determining the personality characteristics of groups of high- and low-scoring ESP subjects. As a generalization, we might judge that subjects who are somewhat extraverted, secure, temperate, well-adjusted, who are favourably disposed towards ESP, and who have a high theoretical value system tend to score high, while subjects who possess opposite characteristics tend to score low.

It was stated at the beginning of this monograph that it seemed appropriate to review the ESP-Personality research in two sections. The two basic approaches of Humphrey and Schneider differ in two respects; on the one hand, in type of measuring instrument used, on the other in the consistency of the results achieved.

In general, Humphrey made her personality assessments by means of questionnaires, or from a more or less objective estimate of certain qualities exhibited in drawings. Her results were usually not repeatable either by herself or by other experimenters working along similar lines, although she did have some repeated success with the E-C rating derived from the ESP material itself, and partial success with the Bernreuter and the Stuart Interest Inventory.

It is generally recognized that the questionnaire method has severe limitations. Regardless of the stability of the factor itself, and it must be remembered that Humphrey was largely concerned with transitory, "surface" traits like expansion-compression, security-insecurity, the measuring instrument itself is subject to irrelevant influences which tend to give rise to spurious measurements. In self-rating scales, there is the well-known "halo" effect, and the amount of "halo" in such scales as Bernreuter and Guilford-Martin is considerable. The strong general factor of the attitude of the subject to the experimental situation may condition his responses to a considerable degree.

A second factor is the temporary mood of the subject. This has been shown to affect responses on the Bernreuter scale, and it probably exerts a similar influence on security-insecurity assessments. It would seem to apply particularly to the expansion-compression ratings, judging from the fact that some subjects rated by one judge were found to change from expansive to compressive in the one experimental session, and would, presumably, change from day to day. An additional source of unreliability lies in the fact that ratings by two judges on the same set of drawings displayed not a great deal of consistency. The second factor is probably the explanation of the non-repeatability of the E-C studies; with such scales as the Maslow and Bernreuter, however, the first, more general explanation appears more pertinent.

Schmeidler generally used attitude classifications and projective techniques. She obtained consistent results, and her experiments were generally repeatable. Insofar as the sheep-goat classification is concerned, however, the question remains of precisely what factors are involved in this differentiation. In the first place, is it possible for a subject to give an unequivocal answer to the question of his attitude towards parapsychology, which is a multi-dimensional subject? He may accept one aspect of psi (telepathy, for example), and reject another (clairvoyance, for example); in such a case, differentiation must obviously be made along these lines. Further, it is possible that in addition to the theoretical acceptance of ESP other factors such as confidence, interest in the experiment, and willingness to co-operate might be concerned in the sheep-goat differentiation. If these additional factors are involved, the subject's answer might merely reflect much deeper multiphasic motivational factors.

Concerning the personality measurements obtained from projective tests, it is generally agreed that the factors measured on Rorschach and the P-F Scale are basic fundamental aspects of personality structure. Because of the endurance of this structure, one would expect to get repeatability of differentiation in terms of Rorschach and P-F criteria providing the tests themselves are reliable. When we describe separation in terms of Rorschach or P-F variables, we are describing a somewhat gross estimate in each case, and it seems reasonable enough to assume that the Rorschach estimate of adjustment and the P-F estimates of extrapunitive and intro-punitive, in their gross evaluation, are reliable enough measures. Since there has been repeated success in discriminating high and low scorers on the basis of these criteria, we imply that there is a relationship between these deeper factors and ESP.

It must be remembered that in all ESP experiments, the role of the experimenter is a vital one. A factor which might contribute to consistency or lack of it in any series of ESP experiments is the delicate experimenter-subject relationship. The effect of such a factor is very difficult to estimate, as it involves the personalities of the experimenter and the subject, and their interaction. In considering this problem of consistency of results, however, cognizance should be taken of the possible effects of such a factor.

It must be emphasized that at this stage of ESP-personality research, more successful predictions of ESP scoring levels have been made on a group than on an individual basis. Certainly the greatest amount of research effort has been directed towards differentiation of scoring levels on the basis of single personality measurements. This is a separation in terms of direction rather than amount of deviation, and as such, is generally not discriminating enough for the purposes of individual prediction. For example, though Schmeidler's poorly adjusted group, as a group, scored around chance, the variation in range of individual scores, from very high to very low, was statistically significant.

Better prediction of direction of group deviation has resulted from the use of combinations of personality measurements, rather than single dimensions. Evidence for the efficiency of such combinations is offered by Humphrey with combinations of E-C and Interest ratings, and E-C and Security-Insecurity ratings, by Schmeidler with combinations of sheep-goat and adjustment criteria, sheep-goat and "absence of seven signs" criteria and sheep-goat and value ratings and by Nicol and Humphrey with a combination of confidence and emotional stability factors.

These combinations permitted measures used in isolation.

Schmeidler's AVSV study is the sheep-goat attitudinal classification. Although no strict linear relationship between ESP orientation. Although no strict predictions were made for group (numbering 1-5). One must point with theoretical orientation is criticisms notwithstanding, this this area.

Of major importance is the some success in predicting individual personality ratings, using multiple level of success reported is not the approach most promising.

In the final evaluation, it appears unique factors in a subject's possesses marked tendencies stimulated to competition, in predicting the direction, and ESP deviation. The question characteristics possessed by the similar in kind to those possessed above chance, and whether therefore, might reasonably the characteristics possessed to be one of the major problem. The answer may well come intensive study of the person subjects, and direct comparison displayed by groups of subjects on the other, from development techniques for selecting individual levels, solely on the basis of tests and assessments.

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These combinations permitted greater differentiation than any of the measures used in isolation.

Schmidler's AVSV study is a further step in this direction. Once the sheep-goat attitudinal classification was known, there appeared a linear relationship between ESP scoring level and degree of theoretical orientation. Although no strictly individual predictions were made, predictions were made for groups which in some cases were very small (numbering 1-5). One must point out that the progression of ESP scores with theoretical orientation is not as impressive as it appears; these criticisms notwithstanding, this study is an important contribution in this area.

Of major importance is the study by Humphrey and Nicol reporting some success in predicting individual ESP scores from a knowledge of personality ratings, using multiple regression analysis. Although the level of success reported is not high, the method is a valuable one, and the approach most promising.

In the final evaluation, it appears clear that if something is known of unique factors in a subject's personality make-up, if, for example, he possesses marked tendencies towards social participation, or is easily stimulated to competition, it is possible to utilize this information in predicting the direction, and, to a much lesser degree, the amount of ESP deviation. The question still remains of whether the personality characteristics possessed by the rare individual high-scoring subject are similar in kind to those possessed by groups of subjects who score slightly above chance, and whether the relative difference in scoring level, therefore, might reasonably be attributed to differences in amount of the characteristics possessed or to motivational factors. This appears to be one of the major problems in this area of ESP personality research. The answer may well come from two sources—on the one hand, from intensive study of the personality makeup of the few high-scoring subjects, and direct comparison with what is known of the characteristics displayed by groups of subjects who score positively, as a group, and, on the other, from development of better experimental and statistical techniques for selecting individuals and predicting their probable scoring levels, solely on the basis of measurements on a number of personality tests and assessments.